

IN THE CLAIMS:

Please amend the claims as follows:

Claim 1 (Currently amended): A photomultiplier comprising:

an outer casing whose interior is maintained in a vacuum state;

a photocathode accommodated in said outer casing, said photocathode emitting electrons into the interior of said outer casing in accordance with light taken in via said outer casing;

an electron multiplier section accommodated in said outer casing, said electron multiplier section having ~~groove portions each extending along a propagation direction of the electrons~~ : a base which has a main surface facing said photocathode such that the electrons from said photocathode directly reach; and a plurality of wall portions for guiding, on the main surface of said base, the reached electrons in a predetermined direction, each of said wall portions extending along the predetermined direction while being in direct contact with the main surface of said base; and

an anode accommodated in said outer casing, said anode taking out, from among electrons resulting from cascade multiplication at said electron multiplier section, reached electrons as signals,

wherein one or more protrusions, each having a secondary electron emitting surface formed on the surface thereof to perform cascade multiplication of the ~~photoelectrons~~ electrons from said photocathode, are provided on the respective surfaces of ~~each pair of wall portions that define the groove portions~~ the adjacent wall portions which face each other.

Claim 2 (Currently Amended): A photomultiplier according to claim ~~[[1]]~~ 3, wherein said protrusions provided on the surface of one wall portion of said each pair of wall portions and said protrusions provided on the surface of the other wall portion of said each pair of wall portions are alternately positioned along the propagation direction of the electrons.

Claim 3 (Currently amended): A photomultiplier ~~according to claim 1~~ comprising:
an outer casing whose interior is maintained in a vacuum state;
a photocathode accommodated in said outer casing, said photocathode emitting electrons
into the interior of said outer casing in accordance with light taken in via said outer casing;
an electron multiplier section accommodated in said outer casing, said electron multiplier
section having groove portions each extending along a propagation direction of the electrons;
and
an anode accommodated in said outer casing, said anode taking out, from among
electrons resulting from cascade multiplication at said electron multiplier section, reached
electrons as signals,
wherein one or more protrusions, each having a secondary electron emitting surface
formed on the surface thereof to perform cascade multiplication of the photoelectrons from said
photocathode, are provided on the respective surfaces of each pair of wall portions that define the
groove portions, and

wherein a height B of each protrusion provided on the surface of the one wall portion among said each pair of wall portions satisfies the following relationship with respect to an interval A between said each pair of wall portions:

$B \geq A/2$.

Claim 4 (Currently amended): A photomultiplier comprising:

an outer casing whose interior is maintained in a vacuum state, said outer casing being constituted by a plurality of glass frames and a plurality of silicon frames which are alternately laminated and are anodic bonded to each other;

a photocathode accommodated in said outer casing, said photocathode emitting electrons into the interior of said outer casing in accordance with light taken in via said outer casing;

an electron multiplier section accommodated in said outer casing, said electron multiplier section having through holes each extending along a propagation direction of the electrons, the through holes being directly provided in one of said plurality of silicon frames; and

an anode accommodated in said outer casing and directly provided in the other one of said plurality of silicon frames, said anode taking out, from among electrons resulting from cascade multiplication at said electron multiplier section, reached electrons as signals,

wherein one or more protrusions, each having a secondary electron emitting surface formed on the surface thereof to perform cascade multiplication of the photoelectrons from said photocathode, are provided on inner wall surfaces of ~~wall portions that define~~ the through holes.

Claim 5 (Previously Presented): A photomultiplier according to claim 4, wherein said protrusions, provided on the surfaces of the wall portions that define the through holes, are positioned at mutually shifted positions as observed in a propagation direction of the electrons.